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(54) Title: DETECTION OF HUMAN PAPILLOMAVIRUS E6 MRNA

(57) Abstract: Oligonucleotide molecules for use in the detection of mRNA transcribed from the E6 gene of a human papillomavirus, the oligonucleotide comprising any one of sequence numbers 1-133. A method of detecting said mRNA by means of NASBA using said oligonucleotides.

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 03/00030

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 C12Q1/70

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 C12Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)  
BIOSIS, EPO-Internal, WPI Data, PAJ, EMBASE, MEDLINE, EMBL, CHEM ABS Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 774 518 A (GEN PROBE INC) 21 May 1997 (1997-05-21) page 15, line 20 - line 55 examples 2,6,8,9 claims 1-4,23,31-62	1-6, 19-29
X	SMITS HENK L ET AL: "Application of the NASBA nucleic acid amplification method for the detection of human papillomavirus type 16 E6-E7 transcripts." JOURNAL OF VIROLOGICAL METHODS, vol. 54, no. 1, 1995, pages 75-81, XP009015131 ISSN: 0166-0934 page 76, paragraph 2 -page 78, paragraph 1	1-6, 19-29

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document relating to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"8" document member of the same patent family

Date of the actual completion of the international search

8 September 2003

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# INTERNATIONAL SEARCH REPORT

International Application No  
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE HPV SEQUENCE DATABASE 'Online! Los Alamos National Laboratory ; September 1997 (1997-09) LOS ALAMOS NATIONAL LABORATORY : "Human papilloma viruses 1997 compendium" XP002250712 Retrieved from: HTTP://HPV-WEB.LANL.GOV/STDGEN/VIRUS/HPV/C OMPENDIUM/HTDOCS/COMPENDIUM_PDF/97PDF/2/E6 .PDF page II-E6-10 -page II-E6-24</p>	1-6, 19-29
A	<p>WO 00 00638 A (DEURSEN PETRUS BERNARDUS HUGO ;AKZO NOBEL NV (NL); KOK WESSEL (NL)) 6 January 2000 (2000-01-06) examples 3-8 table 2 claims 1-4</p>	28
A	<p>LEONE ET AL: "MOLECULAR BEACON PROBES COMBINED WITH AMPLIFICATION BY NASBA ENABLE HOMOGENEOUS, REAL-TIME DETECTION OF RNA" NUCLEIC ACIDS RESEARCH, OXFORD UNIVERSITY PRESS, SURREY, GB, vol. 26, no. 9, 1998, pages 2150-2155, XP002134179 ISSN: 0305-1048 cited in the application page 2151, left-hand column, paragraph 6 -page 2152, right-hand column, paragraph 3</p>	26,27
A	<p>WU SHUENN-JUE L ET AL: "Detection of dengue viral RNA using a nucleic acid sequence-based amplification assay." JOURNAL OF CLINICAL MICROBIOLOGY, vol. 39, no. 8, August 2001 (2001-08), pages 2794-2798, XP002250711 ISSN: 0095-1137 page 2795, left-hand column, paragraph 6 -page 2796, left-hand column, paragraph 2 figure 1 table 1</p>	28
P,X	<p>WO 02 08460 A (ALLARD SUSAN JOYCE ;KARLSEN FRANK (NO); NORCHIP AS (NO)) 31 January 2002 (2002-01-31) the whole document</p>	1-6, 19-29

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB 03/00030

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.: 1-6, 19-29 (all partially) and 7-18 (completely)  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:  
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1-6, 19-29 (all partially) and 7-18 (completely)

Present claims 1-29 relate to an extremely large number of possible compounds and uses thereof. In fact, the claims contain so many options and possible permutations that a lack of clarity and conciseness within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible. Furthermore, the sequences given under their respective SEQ ID Nos. in the sequence listing do not correspond with the sequences to be found under the respective SEQ ID Nos. in Table 1 of the present description. Therefore, it is completely unclear to which sequences the claims refer to.

Consequently, the search has been carried out for those parts of the application which do appear to be clear and concise, namely the NASBA-primers HAe6701p1 and HAe6701p2 as represented in Table 2 as well as methods using said primers. As these primers are specific for HPV type 16, claims 1-6 and 19-29 have been searched insofar as they relate to the said primers, whereas claims 7-18 which relate to primers specific for other HPV types or groups have not been searched at all.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/00030

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0774518	A	21-05-1997	AU 726047 B2	26-10-2000
			AU 1162197 A	05-06-1997
			CA 2237891 A1	22-05-1997
			EP 0774518 A2	21-05-1997
			JP 2000500342 T	18-01-2000
			WO 9718334 A2	22-05-1997
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WO 0000638	A	06-01-2000	AU 4515699 A	17-01-2000
			WO 0000638 A2	06-01-2000
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			WO 0208460 A2	31-01-2002